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On *Cygnus Passmori*, a supposed new American Swan.

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[Read January 21, 1864.]

MR. PASSMORE, taxidermist, of Toronto, who is an experienced and intelligent observer of the objects which his occupation brings under his notice, obtained a Swan during the last winter, which appeared to him so remarkable that he called my attention to it, and requested my opinion as to the species to which it belongs. On examining it with care, I came to the conclusion that it has not yet been described; and although the comparison of further specimens would be very desirable, I venture to lay the observations I have made before the Linnean Society, and to name the new species, from its discoverer, *Cygnus Passmori*.

I regret that I did not see the bird until after it had been prepared, when it was no longer possible to obtain all the measurements which I should wish to give; but as the sternum, with the trachea, was placed in my hands, and I had also two specimens of the same parts taken from the *Cygnus buccinator*, I find myself able to give abundantly sufficient characters, accompanied by an interesting correction of the labours of my predecessors.

The Swan which I now introduce to the notice of naturalists resembles in its general aspect *Cygnus buccinator* of Richardson,

having, like it, the beak, legs, and feet black, and a little colour on the plumage of the head and upper parts of the neck; but the new species, though our specimen is apparently a mature bird, is considerably lighter and smaller in size, and the colour is a light dirty grey, slightly tinged with ferruginous about the crown. The same grey tinge is also seen on the tips and inner webs of the quill-feathers of the wings. The prominence of the forehead between the eyes is subangular; and there is a difference, best expressed by a figure, in the course of the line bounding the beak from the eye to the opening of the mouth. In these remarks, I assume that the name *Cygnus buccinator* must continue to be given to the Great Northern Swan, our commonest species, which, from its peculiar cry, is popularly called the *Trumpeter*, notwithstanding that two species have been for a time included under the one name, and that it happens that the sternum and trachea communicated by Sir John Richardson to Mr. Yarrell, and by him described and figured in the 17th volume of the Society's 'Transactions' (pp. 1-4, tab. 1), appear to have belonged to a specimen of the new species, and the very remarkable corresponding parts of the true *Cygnus buccinator* remain, so far as I can ascertain, as yet undescribed. If I am right in conjecturing that the peculiarities to be pointed out in the trachea are immediately connected with the distinguishing cry of the bird which has given cause for the specific name, and in supposing that Sir J. Richardson's description was probably made from a true Trumpeter, though the trachea procured was obtained from one of a species then confounded with it—that at least the preserved specimen referred to by Mr. Yarrell in his description must have been a Trumpeter—I think I shall be justified in applying the received name to the bird to which it is most appropriate, and bestowing a new one on the smaller species now first distinguished. When, having carefully noted the wide difference between the sternum and trachea in the two species under comparison, I turned to Mr. Yarrell's figure already referred to, it was with no small surprise that I found it corresponded very nearly with what I took to be the trachea of the new species, instead of that of the true Trumpeter. My first impression was that wrong marks might have been affixed to the specimens, or that I might have confused them, although the comparative size made this improbable; but on consulting Mr. Passmore, he was able to remove all doubt by producing the sternum of a second Trumpeter, procured at the same time with that in my hands; and, being a female, its agreement with that previously

examined proved that the specimens were from the first rightly referred, and that, in fact, Mr. Yarrell's figure belongs to our new species, not to the true *C. buccinator* as we understand it. Comparing my sternum of *Cygnus Passmori* with Mr. Yarrell's figure and description, it appears that the bony protrusion at the anterior extremity of the inner face of the sternum is somewhat less solid and less compressed laterally in mine, and that the fold of the trachea within the hollow carina does not advance so far in mine as in Mr. Yarrell's, both which circumstances are explained by his bird being the older; but the resemblance is too close to admit a doubt of specific identity. I proceed, then, to describe the sternum and trachea of what I regard as the true *C. buccinator*. In this, as in the preceding case, the trachea descends without changing its course, passing between the branches of the furcula until it reaches the level of the carina, when it bends backwards and enters between the bony plates of the carina. Proceeding backwards and inwards, it rises above the level of the inner face of the sternum, making a wide bow, which is covered by the bone of the inner surface of the posterior portion of the sternum, as represented in Mr. Yarrell's figure of the sternum of *Cygnus Bewickii* (Transactions, vol. xvi. tab. 25. fig. 3) and in the accompanying drawings. But in *C. buccinator* the rise of the trachea from the carina is more sudden, so that there are very slight traces of a rising over its course until the commencement of the bow, which is also larger than it is represented in *C. Bewickii*: and the returning fold of the trachea, instead of immediately passing out as in *C. Bewickii*, rises into a protuberance at the anterior extremity of the sternum, of the same kind with that of *C. Passmori*; but, instead of rising only, as in that species, to the level of the vertical bone of the sternum, it rises *an inch above it*, with a decided inclination to the right side, looking forward. Within this extraordinary protuberance the trachea bends round, and, as it descends, comes out under the arch of the furcula, the exterior portion being manifestly enlarged, and having much broader rings, contracting again laterally as it approaches the bone of divarication (see fig. 8). The bronchiæ had been destroyed in both specimens of the sternum and trachea of *C. buccinator* before they came into my hands; but they are described as abruptly much swollen close to the bone of divarication, with the tubes shorter than in *Cygnus Passmori*. The figure of the sternum itself also seems to differ in the two species, the angular enlargements at each side of the anterior arch on the interior surface being much more dis-

tinct in *C. Passmori*, and the sinuses at each side of the posterior extremity, which are deep and well defined in *C. Passmori*, being very obscure in *C. buccinator*, as if the large swelling over the trachea interfered with them.

I add a few comparative measurements, and have endeavoured faithfully, though rudely, to represent by figures some points of comparison amongst the North American species of *Cygnus*.

The weight of *C. Passmori* was 18 lbs., whilst that of a medium specimen of *C. buccinator* which was compared with it was 30 lbs.

		inches.
The length, from the tip of the beak to the end of the tail, of	<i>C. Passmori</i>	51
	<i>C. buccinator</i>	60
Length of the head in the line of the meeting of the mandibles	<i>C. Passmori</i>	$7\frac{1}{4}$
	<i>C. buccinator</i>	$9\frac{1}{2}$
Back of the eye to tip of the beak	<i>C. Passmori</i>	5
	<i>C. buccinator</i>	$5\frac{3}{4}$
Hind point of the nostril to tip of the beak	<i>C. Passmori</i>	2
	<i>C. buccinator</i>	3
Length of sternum	<i>C. Passmori</i>	8
	<i>C. buccinator</i>	$8\frac{1}{2}$
Width near the posterior end	<i>C. Passmori</i>	4
	<i>C. buccinator</i>	$4\frac{1}{2}$
Greatest width of the heart-shaped eleva- tion on the posterior portion of the sternum in	<i>C. buccinator</i>	$3\frac{1}{2}$
Length of the same		4

The value of some of these differences can only be determined by repeated trials, but they furnish materials not undeserving of notice.

I believe the ferruginous colour on the head and upper portion of the neck of *C. buccinator* is constant and very characteristic of the species, and it is probably more widely diffused and conspicuous in the younger birds; yet our smaller bird has scarcely any of the ferruginous tint, which is replaced by very pale grey, whilst the wing-feathers, which are pure white in *C. buccinator*, are tipped in *C. Passmori* with a faint fawn-colour. I have mentioned the angular forehead of *C. Passmori*; whilst that of *C. buccinator* has the prominence wider and curved, and in *C. Americanus* it is a much shallower and more open curve. I wish to observe this character in the fresh specimen, lest it should be in any degree affected by the taxidermist's proceedings; but I am disposed to confide in it.

In *C. Passmori* the naked black skin reaches the eye, but does not surround it as in *C. buccinator*, where a narrow black border encloses the eye.

In conclusion, I propose the following character for *C. Passmori*:

CYGNUS PASSMORI, *Hincks*. Albus, capite, cervice et pennarum extremitatibus pallide cinereis, rostro etuberculato et pedibus nigris, fronte subangulatim prominente, trachea intra carinæ parietes et sterni tumorem anteriorem uncialem flexa.

To Sir J. Richardson's character of *Cygnus buccinator* I propose to add:—

Fronte curvatim prominente, trachea intra parietes carinæ flexa, anfractum cordiformem paulum intumescens faciente parte posteriore sterni, tunc tumorem alterum biuncialem dextrorsum inclinatum parte anteriore.

The accompanying figure of the head and neck is taken from a photograph by Mr. Octavius Thompson, of Toronto, from the only specimen yet obtained of *Cygnus Passmori*; and I am indebted



for the drawings of the sternum of *Cygnus buccinator* to my friend Charles Fuller, Esq., of Toronto.

EXPLANATION OF THE FIGURES.

Fig. 1. Side view of the beak of *Cygnus Passmori*, natural size.

Fig. 2. Similar view of the beak of *Cygnus buccinator*.

Figs. 3, 4, & 5. Diagrams showing the different figure of the forehead in the three American species of Swan.

Fig. 1.



Cygnus Passmori.

Fig. 2.



Cygnus buccinator.

Fig. 3.



C. Passmori.

Fig. 4.



C. buccinator.

Fig. 5.



C. Americanus.

Fig. 6.

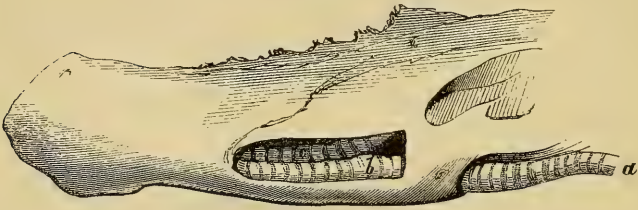


Fig. 7.

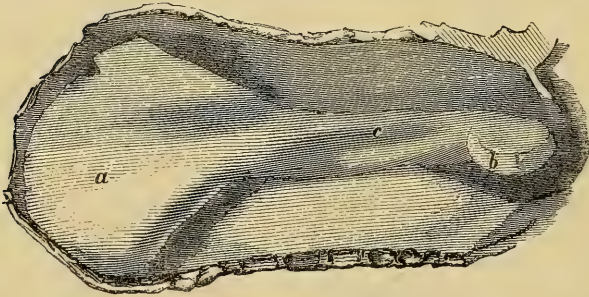


Fig. 8.

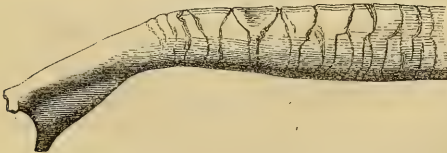


Fig. 6. Sternum of *Cygnus buccinator*, laid on its side ; a portion of the bone of the hollow carina being removed, to show the course of the trachea.

- a. The trachea entering the carina.
- b. The same, just reaching the place where it rises into the projection at the posterior part of the sternum.
- c. The trachea returning from the wide bow formed at the posterior part of the sternum, and bending upwards to enter the tumour after a flexure, within which it proceeds outward and upwards in the usual manner.

Fig. 7. Inner surface of the sternum of *Cygnus buccinator*, reduced to the proportion of three to five, showing

- a. The cordiform enlargement, formed by a horizontal flexure of the trachea, and raised half an inch from the general level of the sternum.
- b. The tumour at the anterior extremity of the sternum, rising two inches above the level, and one inch above the vertical bone, which the tumour in *C. Passmori* only equals in height.
- c. The course of the trachea manifested externally, but without any elevation, the part about c being on the level of the surface of the sternum.

The figure represents the sternum lying on its side, with the inner surface to the observer, the light coming from the posterior end.

Fig. 8. Upper portion of the trachea, with the bone of divarication, showing the broad rings and the mode in which they meet one another.

[Read May 5, 1864.]

Note.—The following is extracted from a letter received from Mr. Hincks since his paper was read:—

“ Toronto, April 10th, 1864.

“ During this winter I have made great efforts to obtain specimens throwing light upon the character of my supposed new species ; and though the season has not been very favourable for bringing Swans our way, I have succeeded in obtaining two young male Swans with the entirely black beak of *Cygnus buccinator*, whose sternum I have carefully examined. I take them both to be younger birds than those previously in my possession ; and I am in doubt whether, beginning with the younger, and placing our *C. Passmori* as part of the series, we have not a succession of degrees of development according to age, leading up to the condition of the trachea in what I have sent as the true *C. buccinator*. This supposition assumes that the trachea *extends with age*, that it enters the hollow carina of the sternum, and soon shows a tendency to a *double bend* ; that the pressure of the trachea on the bone of the sternum would modify *its (the bone's)* shape (as physiologists will readily acknowledge it might do), and

that the singular bony enlargements on the posterior face of the sternum and in the bumps or knobs at the sternal edge, as seen in the drawing sent, mark the ultimate development of the trachea; whilst the state of the trachea in the sternum sent by Sir John Richardson to Mr. Yarrell, and which I now assign to *C. Passmori*, may be a less advanced form of the same structure, and those I have since examined may be still younger forms of the same species.

“ It may be, indeed, that the specimens since examined are younger specimens of *C. Passmori*, and that the true *C. buccinator* is less common, or at least a more northern form; but I think it right to indicate the doubt which I feel myself respecting the new species, leaving the facts for the consideration of better judges. I thought I followed excellent authority in considering such a difference in the trachea as a sufficient mark of a distinct species; but the facts will not be less interesting to ornithologists if they see reason for using such characters with greater caution in future. At present, I must leave the value of my distinctions as a subject for further inquiry, with as little wish to press an unnecessary specific name as to leave interesting facts unrecorded.

“ W. HINCKS.”

Description of a new British Annelide, belonging to the Tribe RUFACEA of Grube=*Annelida errantia* of Milne-Edwards. By W. BAIRD, M.D., F.L.S.

(Plate I.)

[Read April 21, 1864.]

Fam. NEREIDIDÆ.

Gen. HETERONEREIS.

HETERONEREIS SIGNATA, *Baird*. (Pl. I. figs. 1, 1 a-c.)

Char. Corpus pyramidatum, maculatum, dorso et ventre canaliculatum.

Segmenta 2^{ndum}, 3^{rtium}, 4^{tum} et 5^{ntum} brevissima; segmenta sexdecim sequentia magna, pedibus validis, simplicibus; segmenta partis posterioris corporis parva, confertim disposita, pedibus parvis, compositis; cirri pedum anteriorum simplices, non crenati.

Hab. Polperro, Cornwall; in fundo limoso. (Mus. Brit.)

The body of this Annelide (Pl. I. fig. 1) is nearly 3 inches long, consisting of about 106 segments. The anterior portion is